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5th, The apparent identification of the two peoples in the Walam Olum itself in verses 42 and 43, Part V., where it states that

"Well-Praised was chief; he fought at the south.
He fought in the land of the Talega and Koweta."

As this part of the record refers to a much later period than that heretofore quoted, a date subsequent to the appearance of the whites on the continent (verse 40, Part V.), there can be no doubt that it alludes to the Tallegwi in their southern home, to which, as stated in verse 59, Part IV., they had been driven. This supposition is apparently confirmed by the fact that it connects with them the Koweta, or Creeks. This, together with the statement that the fighting was at the south, would seem to imply that they were then in their mountain home or historic seat. It is probable, as will be shown hereafter, that where it is stated, in verses 19 and 20, that

"Look-About was chief; he went to the Talega mountains;
East-Villager was chief; he was east of Talega,"

their position in the Kanawha valley is referred to, where the evidence indicates that they halted for some time on their way south.

CYRUS THOMAS.

KILIMA-NJARO.

DR. HANS MEYER, at a meeting of the Royal Geographical Society, London, on April 12, read a paper on his journey to the summit of Kilima-Njaro. As reported in *Nature*, after giving a short account of his expedition in 1887, and the discouragements to which he had been subjected on two subsequent efforts to carry out his programme, Dr. Meyer went on to say, that, while the main portion of the caravan encamped in Marangu, he ascended with Herr Purtscheller and eight picked men through the primeval forest to a stream beyond, where he had encamped in the year 1887, at an altitude of 9,200 feet. There their large tent was pitched, straw huts were built for the men, and firewood collected. Accompanied by four men, they travelled for two more days up the broad, grassy, southern slopes of Kilima-Njaro to the fields of rapilli on the plateau between Kibo and Mawenzi, and found there to the south-east of Kibo, under the protection afforded by some blocks of lava, a spot, at an altitude of 14,270 feet, well suited for the erection of their small tent. As soon as the instruments and apparatus had been placed under cover, three of the men returned to the camp on the edge of the forest; and only one, a Pangani negro, Mwini Amani by name, remained to share uncomplainingly their sixteen-days' sojourn on the cold and barren heights. With regard to their maintenance, it had been arranged that every third day four men should come up with provisions from the lower camp in Marangu to the central station on the edge of the forest, and that two of the men stationed there should thence convey the necessary food to them in the upper camp, returning immediately afterwards to their respective starting-places; and this, accordingly, was done. Firewood was supplied by the roots of the low bushes still growing there in a few localities, and their negro fetched a daily supply of water from a spring rising below the camp. In that manner they were enabled, as if from an Alpine Club hut, to carry out a settled programme in the ascent and surveying of the upper heights of Kilima-Njaro. The ice-crowned Kibo towered up steeply another 5,000 feet to the west of their camp, itself at an altitude of 14,300 feet. On Oct. 3 they undertook their first ascent. The previous day they had resolved to make the first attempt, not in the direction chosen by him in 1887, but up a large rib of lava which jutted out to the south-east, and formed the southern boundary of the deepest of the eroded ravines on that side of the mountain.

Their plan of operations, which they succeeded in carrying

out, was to climb this lava-ridge to the snow-line, to begin from its uppermost tongue the scramble over the mantle of ice, and endeavor to reach by the shortest way the peak to the south of the mountain, which appeared to be the highest point. It was not till half-past seven o'clock that they reached the crown of that rib of lava which had been their goal from the very first, and, panting for breath, they began to pick their way over the boulders and *débris* covering the steep incline of the ridge. Every ten minutes they had to pause for a few moments to give their lungs and beating hearts a short breathing space; for they had now for some time been above the height of Mont Blanc, and the increasing rarefaction of the atmosphere was making itself gradually felt. At an altitude of 17,220 feet they rested for half an hour. Apparently they had attained an elevation superior to the highest point of Mawenzi, which the rays of the morning sun were painting a ruddy brown. Below them, like so many mole-heaps, lay the hillocks rising from the middle of the saddle. A few roseate cumulus-clouds floated far over the plain, reflecting the reddish-brown laterite soil of the steppe; the lowlands, however, were but dimly visible through the haze of rising vapor. The ice-cap of Kibo was gleaming above their heads, appearing to be almost within reach. Shortly before ten o'clock they stood at its base, at an elevation of 18,270 feet above sea-level. At that point the face of the ice did not ascend, but almost immediately afterwards it rose at an angle of thirty-five degrees; so that, without ice-axes, it would have been absolutely impracticable.

The work of cutting steps in the ice began about half-past ten. Slowly they progressed by the aid of the alpine rope, the brittle and slippery ice necessitating every precaution. They made their way across the crevices of one of the glaciers that projected downwards into the valley which they had traversed in the early morning, and took a rest under the shadow of an extremely steep protuberance of the ice-wall at an altitude of 19,000 feet. On recommencing the ascent, the difficulty of breathing became so pronounced that every fifty paces they had to halt for a few seconds, bending their bodies forward, and gasping for breath. The oxygen of the air amounted there, at an elevation of 19,000 feet, to only 40 per cent, and the humidity to 15 per cent, of what it was at sea-level. No wonder that their lungs had such hard work to do. The surface of the ice became increasingly corroded. More and more it took the form which Güssfeldt, speaking of Aconcagua in Chili, called *nieve penitente*. Honeycombed to a depth of over six feet in the form of rills, teeth, fissures, and pinnacles, the ice-field presented the foot of the mountaineer with difficulties akin to that of a "Karrenfeld." They frequently broke through as far as their breasts, causing their strength to diminish with alarming rapidity. And still the highest ridge of ice appeared to be as distant as ever. At last, about two o'clock, after eleven hours' climb, they drew near the summit of the ridge. A few more hasty steps in the most eager anticipation, and then the secret of Kibo lay unveiled before them. Taking in the whole of Upper Kibo, the precipitous walls of a gigantic crater yawned beneath them. The first glance told that the most lofty elevation of Kibo lay to their left, on the southern brim of the crater, and consisted of three pinnacles of rock rising a few feet above the southern slopes of the mantle of ice.

They first reached the summit on Oct. 6, after passing the night below the limits of the ice, in a spot sheltered by overhanging rocks, at an altitude of 15,160 feet,—an elevation corresponding to that of the summit of Monte Rosa. Wrapped up in their skin bags, they sustained with tolerable comfort even the minimum temperature of 12° F., experienced during the night, and were enabled, about three o'clock on the morning of Oct. 6, to start with fresh energy on their difficult enterprise of climbing the summit; and this time Njaro, the spirit of the ice-crowned mountain, was gracious to them; they reached their goal. At a quarter to nine they were already standing on the upper edge of the crater, at the spot from which they had retraced their steps on Oct. 3. Their further progress from this point to the southern brim of the crater, although not easy, did not present any extraordinary difficulty. An hour and a

half's further ascent brought them to the foot of the three highest pinnacles, which they calmly and systematically climbed one after another. Although the state of the atmosphere and the physical strain of exertion remained the same as on the previous ascent, yet this time they felt far less exhausted because their condition morally was so much more favorable. The central pinnacle reached a height of about 19,700 feet, overtopping the others by 50 to 60 feet. Dr. Meyer was the first to tread, at half-past ten in the morning, the culminating peak. He planted a small German flag, which he had brought with him in his knapsack, upon the rugged lava summit, and christened that—the loftiest spot in Africa—"Kaiser Wilhelm's Peak." After having completed the necessary measurements, the travellers were free to devote their attention to the crater of Kibo, of which an especially fine view was obtainable from Kaiser Wilhelm's Peak. The diameter of the crater measured about 6,500 feet, and it sank down some 600 feet in depth. In the southern portion the walls of lava were either of an ash-gray or reddish-brown color, and were entirely free from ice, descending almost perpendicularly to the base of the crater; and in its northern half, the ice sloped downwards from the upper brim of the crater in terraces, forming blue and white galleries of varying steepness. A rounded cone of eruption, composed of brown ashes and lava, rose in the northern portion of the crater to a height of about 500 feet, which was partly covered by the more than usually thick sheet of ice extending from the northern brim of the crater. The large crater opened westwards in a wide cleft, through which the melting water ran off, and the ice lying upon the western part of the crater and the inner walls issued in the form of a glacier. What a wonderful contrast between this icy stream and the former fiery incandescence of its bed! And above all this there reigned the absolute silence of inanimate nature, forming in its majestic simplicity a scene of the most impressive grandeur. An indelible impression was created in the mind of the traveller to whom it had once been granted to gaze upon a scene like that, and all the more when no human eye had previously beheld it. And certainly, as they sat that evening in their little tent, which they finally reached at nightfall, after a most arduous return march through the driving mist, and carried their thoughts back to the expeditions of 1887 and 1888, they would indeed have changed places with no one. After giving further details of the expedition, Dr. Meyer said that on Oct. 30 they sorrowfully bade farewell to Kilima-Njaro, the most beautiful and interesting, as well as the grandest, region in the Dark Continent.

NOTES AND NEWS.

THERE are said to be at least a hundred thousand acres of phosphate rock scattered through the western part of the State of Florida. The deposits average ten feet in depth, and are rich in phosphate of lime.

— The new government dry-dock at the Brooklyn Navy Yard, which has been in process of construction a little more than two years, was formally opened on the 10th instant, the double-turret monitor "Puritan" being the first vessel docked. The dock is 530 feet long, with an extreme width of 130 feet 4 inches, and a depth of 32 feet 8 inches. The depth of water over the gate-sill at the entrance is 25 feet 6 inches at high water. The pumps have a capacity of 80,000 gallons per minute, and can empty the dock, when no vessel is in it, in an hour and a half.

— Summer courses for 1890 at Harvard University in the following-named subjects will be given: four courses in chemistry (viz., general elementary chemistry, qualitative analysis, quantitative analysis, and organic chemistry), a course in botany, two courses in physics (viz., elementary physics and a higher course in experimental physics), two courses in geology (viz., an elementary course given in Cambridge, and an advanced course given in the field in New York, Connecticut, and Massachusetts), three courses in French, two courses in German, two courses in field engineering (viz., topographical and railroad surveying), a course in physical training, courses in the Medical School. These courses are

chiefly clinical, and are designed for graduates and advanced students. For information concerning all courses, except those in the Medical School, address the secretary of Harvard University, Cambridge, Mass. For information concerning the courses in the Medical School, address the secretary of the Harvard Medical School, Boston, Mass.

— The "Princess Louise," which arrived at Victoria, B.C., from Skidegate and way ports, on the evening of April 24, brought news that on Feb. 24 an earthquake shock was felt on all the islands around Skidegate, especially on the west coast of Queen Charlotte Islands, where a few old shanties were levelled to the ground. The totem-poles of the Indians shook like leaves, and in some places the earth was cracked. The shock lasted for about thirty seconds, during which time the Indians were wild with fright. A number of them ran to the church and crowded in. Since that time there have been about twenty different shocks, the last one being on the 12th of April, although none were near as severe as the first. A very slight shock was felt in the Skeena.

— State Geologist Winslow of Missouri made a report, May 6, to Gov. Francis, of the operations of his bureau during the month of April. During the month the work of the survey progressed most favorably, not having been interrupted by the variable conditions of weather which caused serious hinderance during the month of March. Excellent progress has been made in the detailed mapping of the coal fields, so that now an area of over two hundred square miles has been covered, and is ready to be plotted on the final sheet. Field-work in connection with the investigation of the zinc and lead deposits was suspended early in April, and since that time Mr. Jenny and his assistant have been busy preparing a report of their operations and results, which will be published in a forthcoming bulletin. Early in April the investigation of the clay deposits in the vicinity of St. Louis was begun, and a reconnaissance of the area including these deposits is completed, and some samples are collected. Work in Iron and other south-eastern counties was interrupted in the early part of the month, but since then has been prosecuted continuously, and much has been accomplished in the systematic mapping of this section of the State. The examination of the mineral waters of the State has also made considerable advance. Springs have been visited in Henry, St. Clair, Benton, and Johnson Counties, and samples of water for analysis have been collected from a dozen different localities. During the month, Bulletin No. 1, the first publication of the survey, has been prepared, published, and distributed, nearly fifteen hundred copies having been sent out to people in the State and elsewhere. Cases for the State cabinet have been put up in one of the rooms of the survey, and are now nearly in a condition to receive specimens. The collections of the survey already include over eight hundred specimens. Some of these have been prepared, and will be labelled for exhibit in these cases.

— Mrs. Isabel Mallon has been added to the editorial staff of *The Ladies' Home Journal* of Philadelphia. Her new position makes her the best-paid fashion-writer in the country.

— Three cash prizes, of fifty, thirty, and twenty dollars respectively, are offered by *Public Opinion*, the eclectic weekly magazine of Washington, D.C., for the three best essays, not exceeding two thousand words, on the subject "The Study of Current Topics as a Feature of School, Academic, and College Education." The papers must reach *Public Opinion* prior to June 15, and the award will be made by a committee of three well-known educators, to be selected and announced before the close of the competition. The prize essays will be published over the signatures of the writers July 5. Particulars of the contest may be had by addressing the editor of *Public Opinion*.

— Bulletin No. 1 of the Missouri Geological Survey, just issued, contains a report of the State geologist, Arthur Winslow, and an article by him on "The Coal-Beds of Lafayette County," "The Building Stones and Clays of Iron, St. François, and Madison Counties," by G. E. Ladd; "The Mineral Waters of Saline County," by A. E. Woodward; and "A Preliminary Catalogue of the Fossils occurring in Missouri," by G. Hambach. This bulletin is the first of a series to be issued at intervals.